

What is claimed is:

[Claim 1] 1. A portable device having an overload protection device for motor-operated tool comprises a drive motor;

a drive shaft connected to the drive motor and driven in rotation by the drive motor;

an output shaft for driving a cutting tool, wherein the output shaft is arranged substantially perpendicularly to the drive shaft;

a drive pinion connected to the drive shaft;

a drum supported on the output shaft and driven in rotation by the drive pinion;

a coupling arranged between the drum and the output shaft and engaging the drum;

wherein the coupling is connected to the output shaft;

wherein, when the output shaft is blocked, the coupling effects an automatic decoupling between the drum and the output shaft in order to prevent overloading of the drive motor.

[Claim 2] 2. The portable device according to claim 1, wherein the coupling and the drum engage one another by frictional contact for transmitting a drive torque onto the output shaft.

[Claim 3] 3. The portable device according to claim 2, wherein the coupling and the drum each have contact surfaces coated with a friction material.

[Claim 4] 4. The portable device according to claim 3, further comprising a pressing device that forces the coupling against the drum.

[Claim 5] 5. The portable device according to claim 4, wherein the pressing device is comprised of a coil spring or a leaf spring.

[Claim 6] 6. The portable device according to claim 4, wherein the pressing device is comprised of an elastomer member arranged between the output shaft and the coupling.

[Claim 7] 7. The portable device according to claim 3, wherein the coupling is forced against the drum by centrifugal force generated by rotation of the output shaft.

[Claim 8] 8. The portable device according to claim 3, further comprising a pressing device, wherein the coupling is forced against the drum by the pressing device and by centrifugal force generated by rotation of the output shaft.

[Claim 9] 9. The portable device according to claim 8, wherein the pressing device is comprised of a coil spring or a leaf spring.

[Claim 10] 10. The portable device according to claim 8, wherein the pressing device is comprised of an elastomer member arranged between the output shaft and the coupling.

[Claim 11] 11. The portable device according to claim 1, wherein the coupling comprises first driving means and second driving means, wherein the first driving means have a rotary surface interacting by friction with a rotary surface of the drum, wherein the first driving means comprise a spring device forcing the rotary surface of the driving means against the rotary surface of the drum, wherein the second driving means have a non-radial surface normal and a symmetric or asymmetric profile interacting by positive-locking engagement a surface of the drum, wherein the surface of the drum has a non-radial surface normal, wherein the second driving means comprise a return device for returning the second driving means toward the drive shaft, and wherein the first and second driving means are alternately and uniformly distributed about a circumference of the output shaft.

[Claim 12] 12. The portable device according to claim 11, wherein the surface of the drum has a profile complementary to the symmetric or asymmetric profile of the

second driving means so that the positive locking engagement enables a transmission of a drive torque onto the output shaft.

[Claim 13] 13. The portable device according to claim 1, wherein the coupling comprises driving means comprised of an elastomer member connected to the output shaft and a set of balls circumferentially distributed about the elastomer member and facing the drum.

[Claim 14] 14. The portable device according to claim 1, wherein the coupling comprises driving means that have a rotary surface interacting by friction with a rotary surface of the drum, wherein the driving means comprise a spring device forcing the rotary surface of the driving means against the rotary surface of the drum.

[Claim 15] 15. The portable device according to claim 1, wherein the coupling comprises driving means that have a non-radial surface normal and a symmetric or asymmetric profile interacting by positive-locking engagement a surface of the drum, wherein the surface of the drum has a non-radial surface normal, wherein the driving means comprise a return device for returning the driving means toward the drive shaft.

[Claim 16] 16. The portable device according to claim 15, wherein the surface of the drum has a profile complementary to the symmetric or asymmetric profile of the driving means so that the positive locking engagement enables a transmission of a drive torque onto the output shaft.

[Claim 17] 17. The portable device according to claim 1, wherein a drive action of a tool connected to the output shaft is interrupted when the tool encounters a resistance and is blocked.

[Claim 18] 18. An overload protection device for an electrically operated machine tool having an electric motor and a drive train for driving a tool, wherein the drive train comprises a gearbox, wherein the overload protection device comprises:

a drum having a circumferential wall;

at least one fly body engaging the circumferential wall of the drum;
wherein the drum and the at least one fly body are mounted in the drive train between the electric motor and the gearbox;

wherein the drum is arranged at an input side of the drive train and the at least one fly body is arranged at an output side of the drive train.

[Claim 19] 19. The overload protection device according to claim 18, comprising means for statically pressing the at least one fly body against the circumferential wall of the drum.

[Claim 20] 20. The overload protection device according to claim 19, wherein the means for statically pressing the at least one fly body is realized by arranging the overload protection device in the machine tool such that an axis of rotation of the overload protection device relative to a working position of the machine tool is substantially in a horizontal position.

[Claim 21] 21. The overload protection device according to claim 19, wherein the means for statically pressing the at least one fly body against the circumferential wall of the drum comprise a radial stop, wherein the at least one fly body has a radially outwardly positioned friction coating pressed by the radial stop against the circumferential wall of the drum.

[Claim 22] 22. The overload protection device according to claim 18, further comprising a support member having a bearing leg, wherein the at least one fly body has two spaced apart securing legs engaging opposed sides of the bearing leg, wherein a hinge pin is provided that penetrates the bearing leg and the securing legs.

[Claim 23] 23. The overload protection device according to claim 18, wherein the at least one fly body has a first end that is pivotably supported and has a second free end provided with positive-locking guide means.

[Claim 24] 24. The overload protection device according to claim 23, further comprising a hinge bearing that pivotably supports the at least one fly body, wherein

the second free end, beginning at the hinge bearing, points in an operational rotary direction of the drum.

[Claim 25] 25. The overload protection device according to claim 18, further comprising a support member on which the at least one fly body is supported, wherein the drive train comprises shaft stub arranged between the overload protection device and the gearbox, wherein the shaft stub is supported by a rolling bearing, wherein the rolling bearing is secured between the support member and an input pinion of the gearbox.

[Claim 26] 26. An electrically driven machine tool comprising an overload protection device according to claim 18.